

rider with the ability to drive the motor, and, in turn, the rear wheel by pedaling the bicycle, but does not turn the pedals, when the bicycle is being driven by the motor alone. Because one type of motor used in the invention offers almost no resistance to rotation when the power is turned off, this vehicle can be pedaled with ease.

Response to Grounds of Rejection

Claims 1-5, 44-48 and 54-58

The Examiner has rejected claims 1-5, 44-48 and 54-58 under 35 U.S.C. § 112, second paragraph, as being indefinite because the Examiner contends these claims do not provide sufficient structure to substantiate the function that the motor can drive the vehicle independently.

Initially, it respectfully is submitted that the Examiner has misinterpreted the elements covered by these claims.

For example, as amended, Claims 1, 44 and 54, independent claims from which the remaining claims depend, all include, among other things:

“an electric motor;”

“a sprocket fixedly mounted to said rotatable assembly of said motor;” and

“a-chain engaged to said motor sprocket and a sprocket on said hub for transferring rotary motion from said motor to said wheel.”

Accordingly, because the identified structure includes a chain connecting the rotatable assembly of the motor to a sprocket on the wheel hub, these elements alone provide the function that the motor can drive the vehicle independently.

In this claimed structure, the specified chain provides a drive connection to power the wheel. This chain is driven by either the rotatable assembly of the motor, or by the pedal crank through the “uni-directional drive.” The drive connection which provides the transfer of power from the pedal crank to the chain is the “uni-directional drive engaging the rotatable assembly of said motor and said pedal crank assembly for transferring rotary motion from said pedal crank to said motor, but not from said motor to said crank.” As described in the specification at paragraph 12, one possible structure for the “uni-directional drive” is a “conventional bicycle chain” “connected around the conventional large sprocket on the pedal shaft and the sprocket on a conventional freewheel, which is screwed onto the outer case of the motor.” As further described in paragraph 12 of the specification, “this uni-directional drive arrangement provides the rider with the ability to drive the motor, and, in turn, the rear wheel by pedaling the bicycle, *but does not turn the pedals, when the bicycle is being driven by the motor alone.*” (Emphasis added).

Paragraph 14 of the specification further explains that a number of alternative structures can provide the specified uni-directional drive function:

“As is also well known by those skilled in the art, the uni-directional drive function performed by the conventional freewheel, in conjunction with a chain and fixed sprocket, can alternatively be performed by using a number of other uni-directional rotating devices, such as a clutch bearing fitted to a sprocket.”

Accordingly, Claims 1, 44 and 54, as well as the remaining claims which depend from them, provide structure such that the motor alone “can drive said vehicle independently” as stated in the claims, and the Examiner’s rejection should be withdrawn.

Claims 1, 44 and 54

Contrary to the Examiner's assertion, Davidson can not anticipate these claims, as Davidson does not disclose all the elements of the rejected claims, 1, 44 and 54. Specifically, Davidson does not disclose a uni-directional drive for transferring rotary motion from the pedal crank to the motor only, and not vice-versa.

Claim 1 requires, among other things:

a frame;

a wheel, having a hub with at least one sprocket, said wheel rotatably mounted in said frame;

an electric motor, having a rotatable assembly and a fixed assembly, said motor mounted to said frame by said fixed assembly;

a sprocket fixedly mounted to said rotatable assembly of said motor;

chain engaged to said motor sprocket and a sprocket on said hub for transferring rotary motion from said motor to said wheel;

a pedal crank assembly rotatably mounted in said frame;

a uni-directional drive engaging the rotatable assembly of said motor and said pedal crank assembly for transferring rotary motion from said pedal crank to said motor, but not from said motor to said crank,

whereby either said motor or said pedal crank can drive said vehicle, independently or in unison.

By contrast, Davidson does not teach “a uni-directional drive engaging the rotatable assembly of said motor and said pedal crank assembly for transferring rotary motion from said pedal crank to said motor, but not from said motor to said crank.” Consequently, neither can Davidson meet the claim limitation that “either said motor or said pedal crank can drive said vehicle, independently or in unison.” By its own description, Davidson “relates to an electrically *assisted* pedal cycle.” (See Davidson, Column 1, lines 4-5). In fact, Davidson teaches away from driving the vehicle by the motor alone by providing a vehicle that *cannot be propelled by the motor alone*:

“the electric drive arrangement can only be used to assist the rider in propelling the cycle, and cannot be used to propel the cycle without effort from the rider.”

(See Davidson, Column 2, lines 38-41).

Further, as shown in FIG. 1 of Davidson, because the electric motor drive 13 provides driving force to the rear wheel sprocket 25 solely through the drive chain 26, and because chain 26 is directly engaged to the chain wheel 12 and its attached foot pedals (“connected to the chain wheel 12 are a pair of pedals” (see Davidson, Column 2, lines 11-23)), it follows that any time the motor drive 13 powers the rear wheel sprocket 25 through the drive chain 26, it necessarily also drives the chain wheel 12 and pedals. Accordingly, any time the motor is driving the rear wheel, it is driving the sprocket, pedals, and consequently, the rider’s feet. Therefore, in contrast to the claimed invention, in Davidson the motor alone cannot be used to power the vehicle.

Nowhere does Davidson disclose or even suggest “a uni-directional drive engaging the rotatable assembly of said motor and said pedal crank assembly for

transferring rotary motion from said pedal crank to said motor, but not from said motor to said crank.” Because this essential element is lacking in Davidson, Davidson cannot anticipate claim 1, 44 or 54 of the present invention.

It is well settled that anticipation requires “identity of invention.”

Glaverbel Societe Anonyme v. Northlake Mktg. & Supply, 33 U.S.P.Q.2d 1496, 1498 (Fed. Cir. 1995). Each and every element recited in a claim must be found in a single prior art reference and arranged as in the claim. *In re Marshall*, 198 U.S.P.Q. 344, 346 (CCPA 1978); *Lindemann Maschinenfabrik GmbH v. American Hoist and Derrick Co.*, 221 U.S.P.Q. 481, 485. There must be no differences between what is claimed and what is disclosed in the prior art reference. *In re Kalm*, 154 U.S.P.Q. 10, 12 (C.C.P.A. 1967).

As discussed, above, Davidson does not disclose a uni-directional drive structure to allow either said motor or said pedal crank to drive said vehicle, independently or in unison, as in the rejected claims. Thus, since Davidson does not disclose each and every element cited in the pending claims, there is no identity of invention between the pending application and the Davidson reference. Accordingly, and inasmuch as the sole consideration under § 102 is whether the claims of an application are anticipated by a single reference, the § 102 rejection is insufficient as a matter of law, and must be withdrawn. *Marshall*, 198 U.S.P.Q. at 346; *Lindermann*, 221 U.S.P.Q. at 485.

Claims 2-4, 45-47 and 55-57

Claims 2-4, 45-47 and 55-57, all of which depend from claims 1, 44 and 54, respectively, stand rejected under 35 U.S.C. § 103(a) as being obvious and unpatentable over Davidson in view of Rudwick, U.S. Patent 4,280,581. The Examiner

contends that “Davidson discloses the previously recited elements, but does not disclose the rear hub as multi-speed with shiftable internal gears.”

However, as in the previous rejection above, because the Examiner’s foundational assertion, that Davidson discloses a uni-directional drive engaging the rotatable assembly of the motor and the pedal crank assembly, is incorrect, this rejection cannot stand. Accordingly, the Examiner has failed to establish a prima facie case of obviousness because the combination of the cited references does not teach or suggest all of the limitations of the independent claims 1, 44 and 54. *See In re Royka*, 490 F.2d 981, 985 (CCPA 1974); MPEP § 2143.03. For these reasons, applicant respectfully submits that the rejected claims are nonobvious and allowable. Applicant respectfully asserts that the rejection under Section 103 should be withdrawn.

Claims 5, 48 and 58

The Examiner has also rejected pending claims 5, 48 and 58, all of which depend from claims 1, 44 and 54, respectively, as obvious over Davidson in view of Olsen, U.S. Patent 5,799,747, and Gelhard, U.S. Patent 4,541,500.

However, as in the previous rejection above, because the Examiner’s foundational assertion, that Davidson discloses a uni-directional drive engaging the rotatable assembly of the motor and the pedal crank assembly, is incorrect, this rejection cannot stand. Accordingly, the Examiner has failed to establish a prima facie case of obviousness because the combination of the cited references does not teach or suggest all of the limitations of the independent claims 1, 44 and 54.

Furthermore, the additional limitations contained in dependent claims 5, 48 and 58 are not found in Olsen or Gelhard. For example, contrary to Examiner's assertion, Olsen does not show the use of a brushless direct current motor. As is known in the art, the "high speed (10,000 to 20,000 RPM) permanent magnet DC motor" mentioned in Olsen (Column 3, lines 49-50) is anything but the brushless, slow speed motor (as found in claims 5, 48 and 58 of this application). As described in the applicant's specification at paragraph 15, a slow speed motor such as this may have a speed of under about 260 RPM.

Similarly, Gelhard does not show the brushless, slow speed motor as found in claims 5, 48 and 58 of this application. The motor mentioned in Gelhard has "a direct current short circuit rotor" "and operates at "4500 rotations per minute." (See Gelhard, Column 2, lines 57-60). This is not the brushless, slow speed motor (as found in claims 5, 48 and 58 of this application) which may have a speed of under about 260 RPM. For the further reason that these additional limitations in the dependent claims are lacking in the cited art, the Examiner's rejection under Section 103 should be withdrawn.

The Examiner's Rejections Are Deficient as a Matter of Law

Because the Examiner has misinterpreted the primary piece of art, Davidson, and because the rejections are based on a misinterpretation of fact, as a matter of fact and law, the rejections should be withdrawn. *See Ex parte Porter*, 25 USPQ2d 1144, 1147 (BPAI 1992)(reversing a rejection based on a misinterpretation of the disclosure of a reference); *Ex parte Levy*, 17 USPQ2d 1461, 1465 (BPAI 1990)(same). Moreover, even if the Examiner were correct in his analysis of Davidson, the rejection

would still fall short, because it lacks the requisite suggestion and motivation as to *why* one skilled in the art would have selected the art the Examiner selected and *why* one would have been led to combine Davidson and Rudwick, Olsen, or Gelhard as the Examiner did.

As noted above, in making the rejections, the Examiner merely asserted that "it would have been obvious to include" elements the Examiner asserts are found in Rudwick, Olsen, or Gelhard with the vehicle of Davidson et al. (Office Action, p. 4, lines 10 – 11, 21-22, and 27-28). Thus, the Examiner asserted that one could make a modification to Davidson merely because the element exists in the art.

Whether or not all of the elements recited in the rejected claims were "known" or can be found in the art is absolutely insufficient to support a rejection under 103. As Judge Rader explained in *In re Rouffet*:

"virtually all [inventions] are combinations of old elements." . . . Therefore an examiner may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. Such an approach would be "an illogical and inappropriate process by which to determine patentability."

In re Rouffet 149 F.3d 1350, 1357, 47 U.S.P.Q.2d 1453 (Fed. Cir. 1993).

Thus, because the Examiner relied on an "Is-it-known" standard, and because that standard has been expressly rejected, the rejection should be reversed.

Moreover, the Examiner never attempted to explain *why* one would have been *led* to deviate from Davidson's teachings and modify Davidson precisely at that point, and *why* one would have looked to Rudwick, Olsen, or Gelhard, rather than any

other document, to modify Davidson precisely at that point. But such explanations are what a conclusion of obviousness requires:

To prevent the use of hindsight based on the invention to defeat patentability of the invention, this court requires the examiner to show a motivation to combine the references that create the case of obviousness. In other words, ***the examiner must show reasons that the skilled artisan***, confronted with the same problems as the inventor and with no knowledge of the claimed invention, ***would select the elements from the cited prior art references*** for combination in the manner claimed.

* * * *

In other words, the [Examiner] must explain the reasons that one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious.

In re Rouffet 149 F.3d 1350, 1357, 1359, 47 U.S.P.Q.2d 1453 (Fed. Cir. 1993)(emphasis added).


Thus, because the Examiner failed to identify any suggestion or motivation for *why* one would have been *led* to select and modify the cited art as the Examiner did, the rejections should be withdrawn.

An Examiner "must indicate where a teaching or suggestion appears in the reference." *In re Rinehart*, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993). Here, the Examiner did not meet that initial burden. *See also In re Lee*, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (emphasizing the importance of providing objective evidence and making specific factual findings with respect to the motivation to combine references). As is apparent from a review of the Office Action, nowhere is there any evidence or even an allegation that one would have been motivated to deviate at that precise point from the vehicle of Davidson and make the combination the Examiner made.

Beyond all of the foregoing, the Examiner's argument that it would have been obvious to modify Davidson is not only not the standard under 103, to undersigned's knowledge, no case has affirmed a rejection based on an "obvious to modify" rationale. And the Examiner cites none. So that the record is clear, should the Examiner maintain the rejection in view of all of the foregoing, it respectfully is requested that the Examiner provide authority to support his rationales.

In view of all of the foregoing, reconsideration and withdrawal of the rejections, and allowance of all claims, respectfully are solicited. The examiner is encouraged to contact the undersigned via telephone to resolve any outstanding issues.

Respectfully submitted,

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